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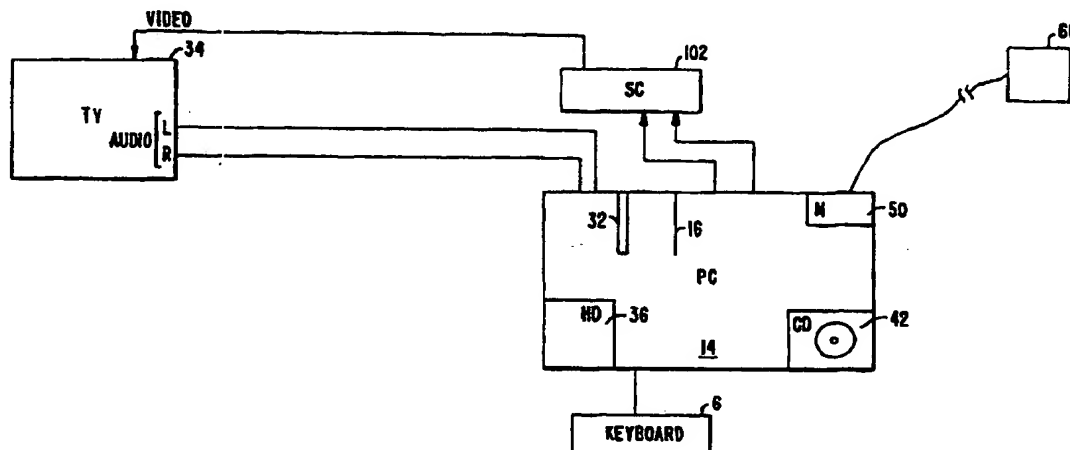
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(54) Title: SELECTIVELY PREVIEWING COMBINED AUDIO AND VISUAL INFORMATION



(57) Abstract

A system and method is disclosed for digitally storing and retrieving a selection chosen from a plurality of prerecorded product presentations. The system includes a PC based kiosk system (14) comprising CD-ROM storage mean (42), a digital video interactive board (32) and a scan converter (102) to optionally overlay text on the video display. The kiosk system may also include intelligent marketing features such as coupon dispensing; and interface with the retail location point-of-sale system.

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5 "Selectively Previewing combined audio and visual information"

BACKGROUND OF THE INVENTION

10 The present invention relates to systems which selectively display information relating to products. More particularly, it relates to a computer based system and method by which a user may select individual products or services and thereafter receive the audio and visual preview of the
15 indicated product selection.

With the vast quantity of available products and services, such as for example music or video selections, a consumer is faced with a formidable task in selecting which products they may wish to purchase. Unfortunately, consumers
20 are often frustrated after having made a purchase of an unintended product or service. In other cases, the consumer may avoid altogether purchasing a product or service due to frustration and confusion arising from the vast quantity of available products.

25 With respect to selection and display of prerecorded music albums, one system is presented in U.S. Patent No. 5,084,768 issued January 28, 1992 to Stern et al. The system and method described in U.S. Patent No. 5,084,768 incorporates a plurality of optical disk storage means, thereby decreasing
30 access time in the search for a selected presentation.

Consumer patience is becoming an increasingly scarce commodity; that is, consumers are unwilling to wait even a small amount of time for a requested portion of information relating to a product or service offered for sale. Further,
35 typical consumers are unwilling to wait either during or after a selected presentation for specific information related to a selection such as, for example, pricing or marketing information. Consumer impatience continues to be a factor in the success of selective preview systems, and an improved
40 method and apparatus is much desired.

Moreover, tracking and management of inventory is a costly and time consuming task for retail store owners, and may lead to further consumer frustration if, for example, a music selection is searched for and found to be even temporarily out of stock. With respect to systems which present a user with previews of products and available services, dissemination of updated and current audio and video previews corresponding to the current product or service being offered is increasingly a problem.

The above represent just a few of the shortcomings which have persisted in the field of consumer information systems. A better system for previewing products is much desired.

SUMMARY OF THE INVENTION

An improved system and method for selectively previewing products by means of combined video and audio presentations is provided by the present invention.

In one sense, the present invention provides means for a user to choose from a plurality of displayed images, and by the user simply indicating a desired selection by pressing a switch, preferably a back-lit switch. Rapid decompression of digitally stored data quickly followed by initiation and display of the combined audio and corresponding video ("AV") preview of the indicated product information selection is thereafter commenced.

One embodiment of the present invention comprises a method of previewing by a user of at least portions of prerecorded product information selections consisting essentially of viewing a plurality of image representations on a back-lit display each corresponding to one of a plurality of the product information selections stored in compressed digital format in a storage means, and touching the display over a select one of the image representations to cause at least portions of the corresponding one of the product information selections to be decompressed and displayed to the user in combined video and audio format.

In another embodiment, the invention comprises a system for a user to selectively preview at least portions of prerecorded product presentations comprising display means for simultaneously indicating to a user the plurality of the prerecorded portions; digital storage means for storing the prerecorded portions in compressed digital form; means for decompressing the digital information from the digital storage means; means, coupled to the display means, for playing a select one of the prerecorded portions following selection by a user whereby the playing of presentations commences in less than about five (5) seconds, preferably less than about three (3) seconds, from the time the selection was made by the user.

The digital decompression means in the above system preferably includes a digital video interactive board and corresponding software. The display means for indicating the array of possible selections to the user preferably is an array of switches further comprising a sheet of images overlaid on the array, each of the images representing one of the prerecorded product information selections.

A key feature in one embodiment of the present invention relates to combined "full motion video" and textual or character information on the video display. In this embodiment the means for playing the product information further comprises means to selectively overlay textual or character information on the video display means, preferably a scan converter card, and may optionally further include means for storing textual or character information in digital form for later display to the user.

The supplemental information to be selectively displayed to the user may comprise, for example, pricing information related to purchase of entertainment selections, or other general information related to the retail location in which the system is located. The supplemental textual character information features includes means to write data from a remote location to the means for storing textual character data. Additionally, if desired the system may also comprise means to obtain system and/or user information from a remote location.

Additionally, certain embodiments of the inventions comprise means to re-order, vary, add or delete the composition of the individual selections which make up the array of prerecorded portions indicated to the system user.

5 The intelligent marketing system features of the present invention useful in other embodiments may include, in combination with the above system, means to dispense either preprinted, or preferably selectively printed retail coupons corresponding to the selected prerecorded portions, such as,
10 for example, discounts on purchase of the selected or related selection. The coupon dispenser may interface with the display to prompt the kiosk user with messages, such as for example, "DO YOU WANT A DOLLARS OFF COUPON FOR THIS SELECTION?" The coupon dispenser may be manually or
15 automatically linked with other information, such as for example inventory or the time a user is using the system.

 Other intelligent marketing features include, in another embodiment, means to sense inventory of a prerecorded selection on hand at the retail location at which the system
20 is located, means to generate and display a user message relating to one of the selections when the selection is selected by a system user. This embodiment is particularly advantageous when the present system is deployed in a retail location having a computerized point-of-sale system, whereby
25 inventory information may be conveniently transferred to the present system.

 Another improvement embodied in the system of the present invention is the use of short video and audio segments, to be displayed to the user between the initiation
30 by a user of a preview selection and the commencement of playing of the preview. These short segments, herein referred to as "video bumpers" avoid the blank screen "wait time" following preview selection and before commencement of the preview, thereby providing concise directed information at a
35 time of heightened user awareness.

 The present invention also includes a method of providing information to a consumer comprising the steps of:

predetermining which of a plurality of prerecorded product information selections are to have associated textual character information displayed therewith; sensing when one of the predetermined selections is selected by a user to be played; and displaying textual character information concurrently with playing of the product information. The preview specific information may be uploaded to the system from a remote location.

Other embodiments of the present invention include a method of disseminating current product or service information on a timely basis to the preview system which may be located at a multitude of retail or other locations. The method comprises the steps of writing video and audio information to a first compressed compact digital disk for use in the digital storage means as described above. At a later time a second compressed compact digital disk is created and substituted for the first disk in the systems located at remote locations.

A further understanding of the nature and advantages of the inventions herein may be realized by reference to the remaining portions of this specification, as well as the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Figures 1 through 7 depict various views of one kiosk in which the present invention is useful.

Figures 8 through 14 depict various views of one kiosk in which the present invention is useful.

Figure 15 is an overall block diagram depicting major electrical components of the system.

Figure 16 is a flow chart of steps carried out by computer software used in the personal computer component in accordance with embodiments of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

I. General.

By the term "AV presentation" we mean the combined video and corresponding audio display representative or relating to a particular product or service for sale. Figures 1 through 7 illustrates a product information preview display system in an various isometric views. Figures 8 through 14 illustrates another embodiment of the product information preview display system in an various isometric views.

The invention herein is illustrated primarily with regard to the presentation of previews of music albums and associated "MTV" type "music video" displays, but it will be understood that the invention is not so limited. For example, the invention herein could be used to present video previews of movies available in home video stores or other retail sales locations.

Further, instead of presenting only a preview of the selection, it may be desired in some embodiments to present the entire selection. Still further, the device may be used in, for example, a travel agency or a public area to preview various travel destinations upon demand. Another example of an operating environment of the present system is with reference to financial or banking products or services. Other variations in operation will be apparent to those in the art.

The preview system is preferably mounted in a cabinet. The cabinet may be conveniently constructed of a wide variety of materials including, for example, plastic, wood, metal, fiberboard or the like. The cabinet is provided with a keyboard area and a video display area. Recessed into the cabinet or optionally provided in a separate unit are also speakers behind grills or the like for presentation of the audio portion of a selected preview.

In the preferred embodiment, the keyboard is a partially transparent or translucent sheet or sheets of plastic, preferably also back-lit with a light. The keyboard is divided into an array of product illustration regions which may contain, for example in the case of music products, photographic reproductions of album covers or the like. In

Figure 1, the selection display is illustrated with reference to an array of about 80 product images, but it will be apparent that the invention is not so limited as any desired number of selections may be presented to the user, although it will generally be desirable to provide about 50 or more, preferably about 90 or more selections. The illustration region may also be backed by a light or lights which are preferably consistently illuminated. When desired, the back-lights may be selectively flashed, for instance, when the corresponding selection is in play.

Again with reference to the display of music products in the array, the various selections are preferably divided according to music type. Separation of music types may be provided with, for example, different background colors, division lines, or the like. The selections may be divided into, for example, country, rock, classical or the like categories. Such a product distinction scheme may be applied to other products, such as for example video categories or travel destinations, or a combination of any of the above categories.

In operation, a user approaches the system or kiosk, views the array of product or service related information available and indicates a selection via the keypad array by pressing the keypad at the location of the selection. The user need not perform any other task. Preferably within a few seconds, the preview system plays a portion of the selection in audio form while simultaneously presenting a full motion video segment on the video display 8 via a CD-ROM disc. Other system components are set forth below.

Another feature of the system operation involves the "attraction" of a user to a kiosk through the display of product information in a predetermined manner, when a given kiosk is not presently in use. In accordance with the present invention the system displays an ordered sequence of selections according to input factors such as for example location, time of day, available product inventory, or the like. Predetermined numbers of individual selections may be directed to display in a continual sequence, or in a random

manner. Further, the sequences themselves may be ordered in a predetermined manner. The attract mode is enabled a predetermined time when a the system is not in present use.

5 The system of the present invention is able to effectively process the data required with the full motion videos in part due to incorporation of data compression techniques in data storage and retrieval. In the preferred embodiment data compression algorithms embodied in software available from Horizons Technology, San Diego, California is
10 used in combination with the user interface and computer system components as described herein to enable full-motion play, and most importantly retrieval of compressed digitally stored data within short time constraints. A Digital Video Interface ("DVI") board is used to interface the CD-ROM with
15 the PC. The DVI board is available from Digital Equipment Corporation.

In other embodiments, the system includes means to display textual character information on the video display means, preferably simultaneously with a full motion video
20 selection. The display of text is enabled in the preferred embodiment by the incorporation of a scan rate converter card in the computer system. External converter devices may also be used. A scan rate converter automatically scans the video rate of a source video and converts the signal to another
25 video rate. In the system of the present invention, the scan rate converter functions to convert digital signal from the computer to a scan rate consistent with the video output going to the TV display means. One such external scan rate converter device is available from Video Logic, sold under the
30 name "Mediator." Another useful internal scan rate converter is available from Advanced Digital Systems.

Variations in the selections presented to the user may be provided on, for example, a monthly basis. Music video selections from a wide variety of music labels are collected
35 periodically and segments of such music videos are recorded serially on magnetic tape. Such segments may, for example, be 30 seconds to one minute in length. Identifying text containing, for example, the artist's name, the title of the

selection, the recording company, and the like may be imposed on the video image. In addition, a miniature color representation of the product being previewed (e.g., an album cover) may also be imposed on the video image. The tape is then transferred to CD-ROM discs in compressed digital format for later playback in accordance with the present invention.

II. System.

Figure 2 provides an overall block diagram of the electronic components of the preview system. The system is managed and controlled by a digital computer 14 which may be, for example, an IBM PC, PC-XT, PC-AT, or compatible computer, preferably equipped with a VGA card 16 of the type known to those skilled in the art. While the invention is illustrated herein by way of reference to the use of a personal computer for management of the system, it will be apparent that a wide variety of digital processing devices could be used without departing from the scope of the invention herein. For example, a microprocessor or discrete logic could perform many or all of the functions disclosed herein.

PC 14 is connected to and polls the keypad 6 for input from a user via, for example, a 25 pin M/F connection. The system may alternatively scan the keyboard using a separate scanned keyboard controller of the type well known to those skilled in the art (such as those found in conventional personal computers). Such scanned keyboard controllers would provide information to the PC, indicating which, if any, of the keypads is depressed at a given time.

The connector is used to transmit control information to and receive control information from the PC. Video outputs from the PC 14 to the scan converter 102 are preferably provided via a 15 Pin M/M connection. Scan converter 102 may, for example, be a model number FFN-100 available from Advanced Digital Systems located in Cerritos, California. The scan converter receives input signal from the PC and outputs video signal to the monitor 34 via a RCA connection 101. Audio outputs from the PC 14 to the PC interface may be provided via a standard RCA connection.

In the preferred system of the present invention, the PC 14 is equipped with a Digital Video Interactive ("DVI") board 32 and a VGA board 16. The DVI board may be, for example, a model number P2-ISSB available from Ace Coin Equipment in England. The VGA and DVI boards are connected, for example, via a 26 pin ribbon cable. The PC 14 is also equipped with a CD-ROM Drive 42. The CD-ROM drive may be connected to the DVI board via a 50 pin ribbon cable. In the preferred embodiment, PC 14 also contains modem 50 to allow connections, for example, via phone line to an off-site station 60.

Communication with the kiosk system from remote locations has several advantages. In some circumstances, it may be desired to obtain information on the users and their selections at kiosks at specific retail locations. This information may be useful, for example, to adjust the inventory, variety and content of products available for purchase at the individual locations. It may also provide a basis for altering the "attract" video feature of the present invention at different times during retail store hours, from, for example, "teen hits" in the afternoon to "classic rock" in the evening hours when adults may be present.

"User statistics" may also be valuable marketing information when linked with a retail outlet's "point-of-sale" system and determining a relationship between specific preview selections at the kiosk and resulting purchases in the store. Modification of previews may take this into account when future CD-ROM disks are created and disseminated in accordance with embodiments of the present invention.

Communication with the kiosks may also enable "targeted text" messages to be sent via modem from an off-site location to the kiosk system. The messages would preferably be stored on writable storage means in the kiosk, such as, for example, the hard disk 36 within the PC 14. According to the present invention, the messages correspond to one or more predetermined combined video and music selections, and when such selections are chosen by a kiosk user, the text messages are retrieved from the storage means and overlaid onto the

video output display via the scan converter 102. Typical messages may comprise phrases such as, for example, "ON SALE NOW FOR 12.99", or "NEW IN THE CLASSIC ROCK SECTION," or the like.

5 Connection via modem from an off-site location may further be utilized to load updated data and other information to specific kiosks, or all kiosk locations. Data constituting, for example video, or a new display array of products offered, in which certain of the products are deleted
10 or added from prior versions may be loaded from an off-site location.

 Audio outputs are provided from the PC to a TV display 34 via RCA connections, respectively. TV 34 may be selected from a wide variety of monitors available in the
15 marketplace including, for example, a 25 inch monitor from Zenith, Inc.

III. System logical processing.

 In the preferred process of the present invention,
20 the user initiates the sequence by viewing the preview selections, and indicating a choice. After an initialization step 200, the program loops through reading the keyboard step 201. If a key was pressed at step 202, the process then proceeds to step 210 for diagnostics. Otherwise, the process
25 proceeds to step 203, to determine whether the system is in a video play mode.

 At step 210, if the current mode is DIAGNOSTICS, the system is then directed to handle the diagnostics represented at step 217. Otherwise, the process proceeds to step 211.

30 At step 211, if the key pressed is between 1 and 99, the system searches for the digitally stored track, decompresses the selected data stored on the track, and then plays the combined video and audio presentation at step 216. Otherwise, if the key is not between 1 and 99, the system
35 process proceeds to step 212.

 At step 212, the system queries whether a particular switch, for example, a colored Button #1 representing a store employee control function was pressed. If this is the case,

the system displays the first diagnostics screen, represented by step 215. Otherwise, the process proceeds to step 213. Similar to step 212, at step 213, if, for example, a colored Button #2, representing repair technician control function was
5 pressed, the system then displays the second diagnostics screen indicated as step 214.

Referring again to step 203, the system queries whether a video is currently playing. If so, the system maintains playing that video, as represented by step 209. If
10 a video is not presently playing when queried at step 203, the process proceeds to step 204.

At step 204, the system asks if the attract count is 0 or 4. If so, the system then plays a random attract video and sets the attract count to 1 steps 207 and 208. Otherwise,
15 the system plays a random video and increments the attract count, as indicated by steps 205 and 206. At the conclusion of any of the above steps, the process loops to step 201.

The present invention provides a greatly improved method and apparatus for displaying audio and associated video
20 previews. It is to be understood that the above description is intended to be illustrative and not restrictive. Many variations of the invention will become apparent to those skilled in the art upon review of this disclosure. Merely by way of example, the invention has been illustrated primarily
25 with regard to the presentation of record albums and associated video, but the invention is not so limited. The scope of the invention should, therefore, be determined not with reference to the above description, but instead should be
30 determined with reference to the appended claims along with their full scope of equivalents.

WHAT IS CLAIMED IS:

1. A method of previewing products offered for sale comprising portions of prerecorded AV presentations stored in compressed digital form consisting essentially of:

5 viewing a plurality of product image representations on a display each corresponding to one of a plurality of said AV presentations stored in compressed digital form in a storage means;

10 touching said display over a select one of said image representations; and

decompressing and displaying said corresponding selection from a CD-ROM storage means to said user in combined video and corresponding audio format.

15 2. A kiosk system in which a user may selectively preview at least portions of prerecorded AV presentations comprising:

display means for simultaneously indicating to said user a plurality of product images;

20 digital storage means for storing said prerecorded AV presentations as compressed digital information;

means for decompressing said digital information from said digital storage means; and

25 means, coupled to said display means, for playing a select one of said AV presentations whereby said playing of presentations commences in less than about five (5) seconds from the time said selection was made by said user.

30 3. The kiosk system as recited in claim 2 wherein said digital storage means comprises a single CD-ROM player.

35 4. The kiosk system as recited in claim 2 wherein said digital decompression means comprises a digital video interactive board and corresponding software.

5 5. The kiosk system as recited in claim 2 wherein said display means comprises an array of switches and a sheet of images overlaid on said array, each of said images representing one of said prerecorded combined video and audio presentations.

10 6. The kiosk system as recited in claim 2 wherein said means for playing said AV presentations further comprises scan converter means to selectively overlay textual character information on video display means.

15 7. The kiosk system as recited in claim 5 further comprising means for storing textual character information in digital form for later display to said user.

 8. The kiosk system as recited in claim 6 wherein said textual character information comprises pricing information related to purchase of entertainment selections.

20 9. The kiosk system as recited in claim 6 wherein said textual character information comprises pricing information related to the retail location in which said kiosk system is located.

25 10. The kiosk system as recited in claim 5 further comprising means to write data to said means for storing textual character data from a remote location.

30 11. The kiosk system as recited in claim 2 further comprising means to obtain user information from a remote location.

35 12. The kiosk system as recited in claim 2 further comprising means to selectively dispense retail coupons corresponding to said prerecorded portions.

 13. The kiosk system as recited in claim 2 further comprising

means to sense inventory of a prerecorded selection on hand at the retail location at which said kiosk system is located; and

5 means to generate and display a user message relating to one of said presentations when said selection is selected by a kiosk system user.

10 14. The kiosk system as recited in claim 2 further comprising means to generate a video bumper for play of said video bumper subsequent to selection of said prerecorded portion by user or prior to playing of said AV presentation.

15 15. A method of providing information to a consumer comprising the steps of:
predetermining which of a plurality of
prerecorded AV presentations are to have associated textual
character information displayed therewith;
sensing when one of said predetermined
20 presentations is selected by a user to be played; and
displaying textual character information
concurrently with playing of said AV presentation.

25 16. The method as recited in claim 14 further comprising the step of
uploading from a remote location at least a
portion of said information.

30 17. The method as recited in claim 14 further comprising the step of
dispensing a coupon relating to the purchase of
said prerecorded selection.

18. The method of disseminating product information comprising the steps of:

5 creating a first compact digital disk comprising portions of AV presentations in compressed format for use in the kiosk system as recited in claim 2 and a corresponding selection overlay array;

 placing said first compressed disk and said overlay into said kiosk system;

10 creating a second compact digital disk comprising portions of AV presentations in compressed format and a selection overlay array corresponding to said second compact digital disk at a time later than said creation of said first compressed digital disk; and

15 placing said second compressed digital disk and said second overlay array into said kiosk system.

19. The kiosk system as recited in claim 5 wherein moving or still images are transmitted via modem to said kiosk location.

20

20. The kiosk system as recited in claim 19 further comprising means to alter the products images displayed by the display array via modem from an off-site location.

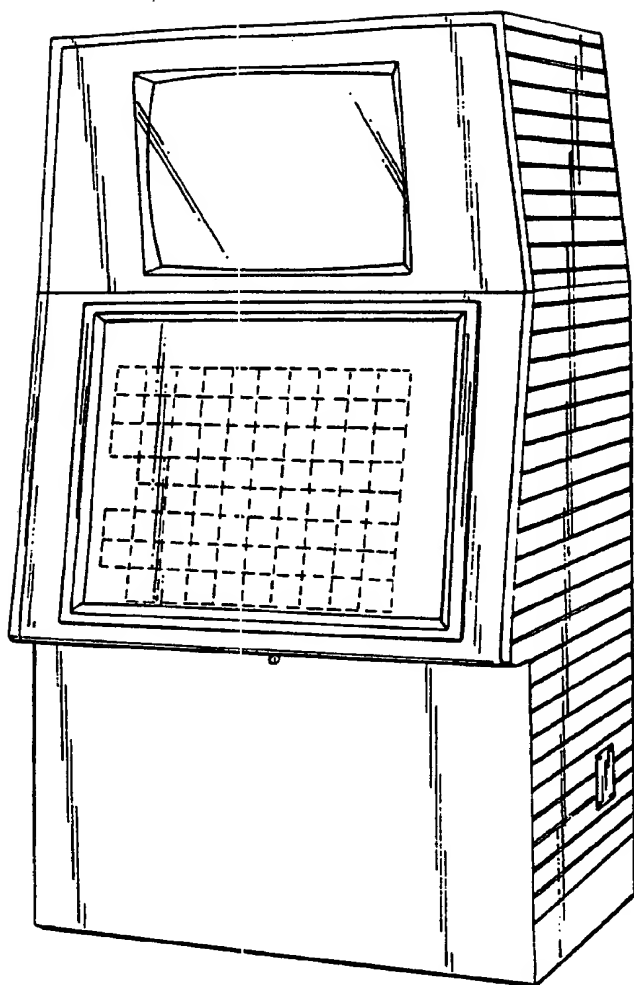


FIG. 1.

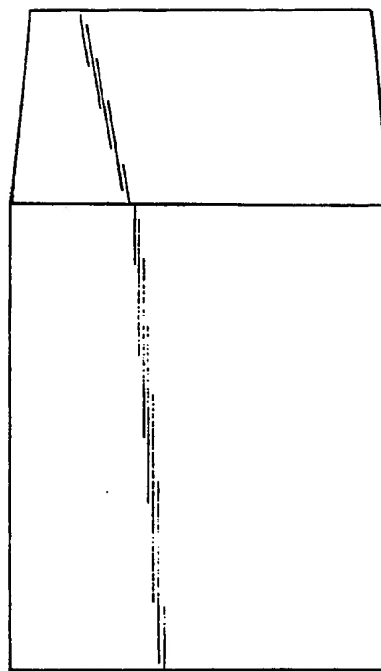


FIG. 7.

2 / 7

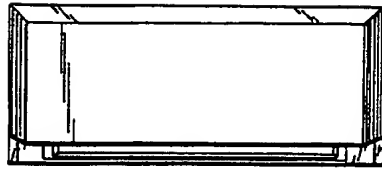


FIG. 2.

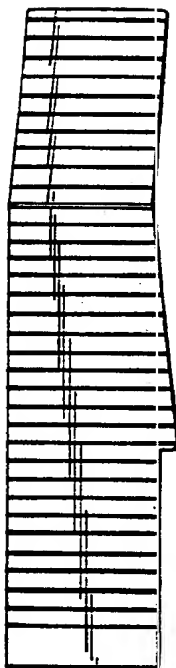


FIG. 5.

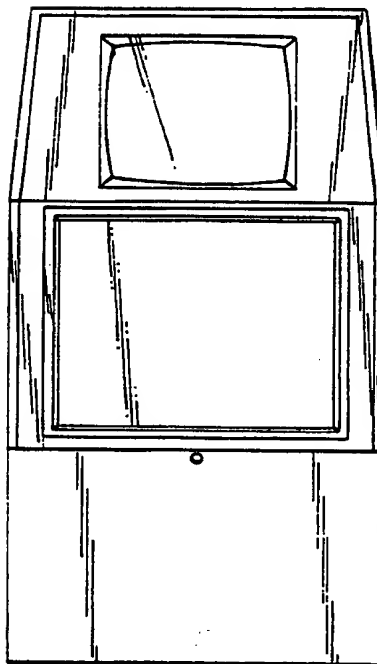


FIG. 3.

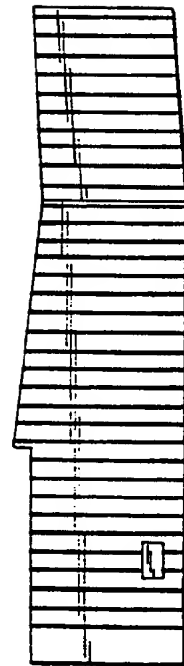


FIG. 4.

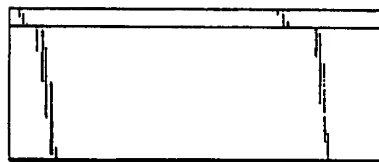


FIG. 6.

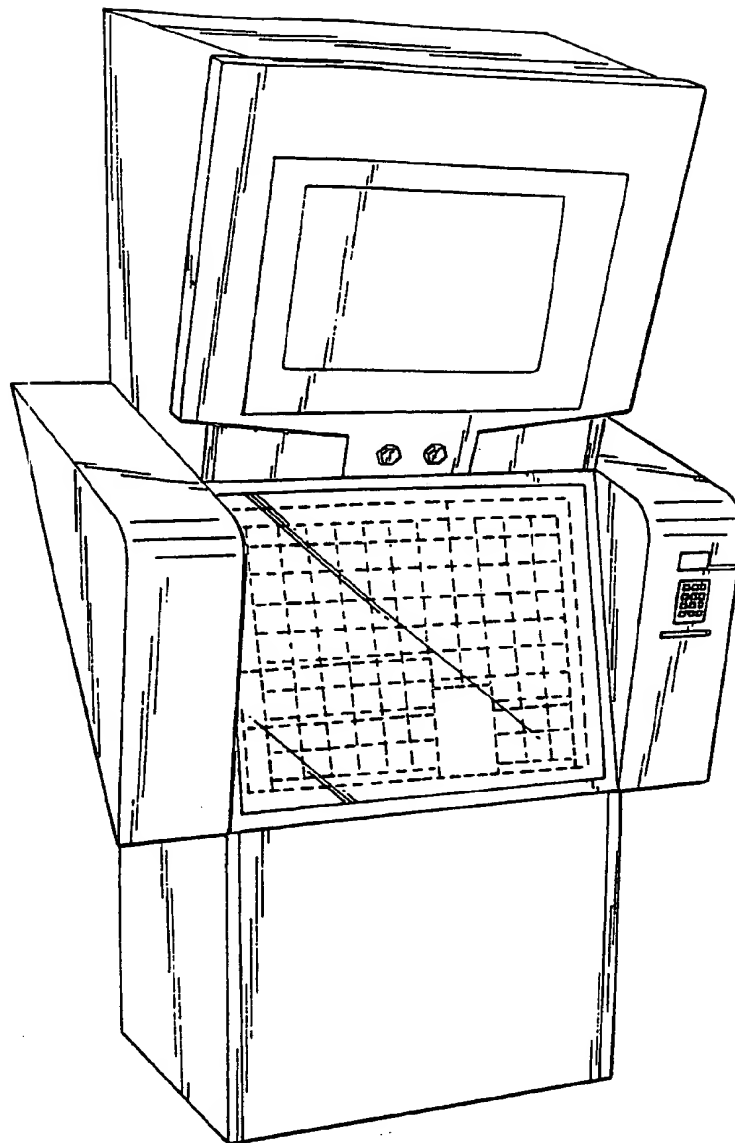


FIG. 8.

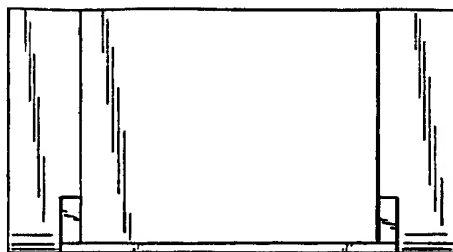


FIG. 9.

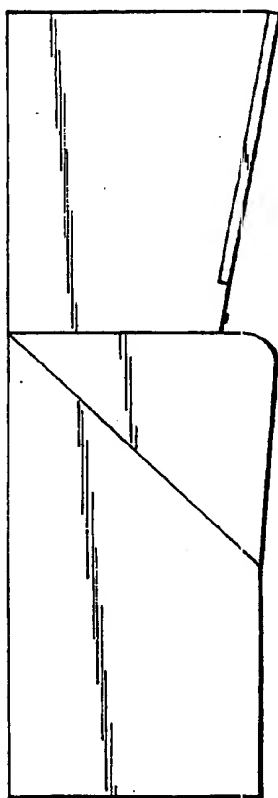


FIG. 12.

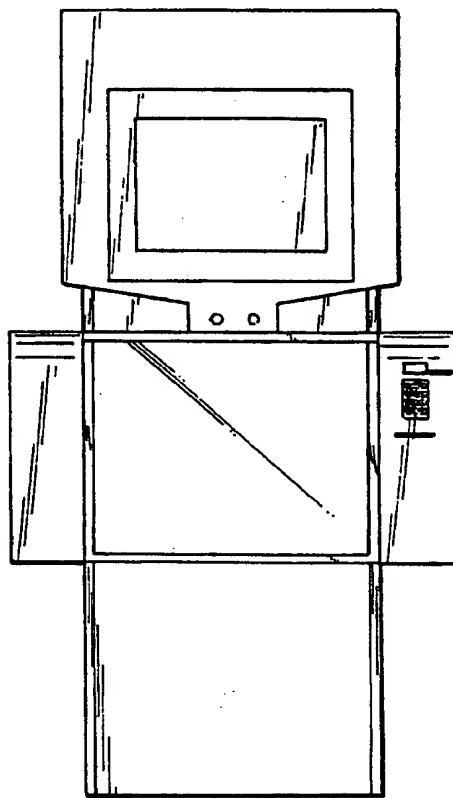


FIG. 10.

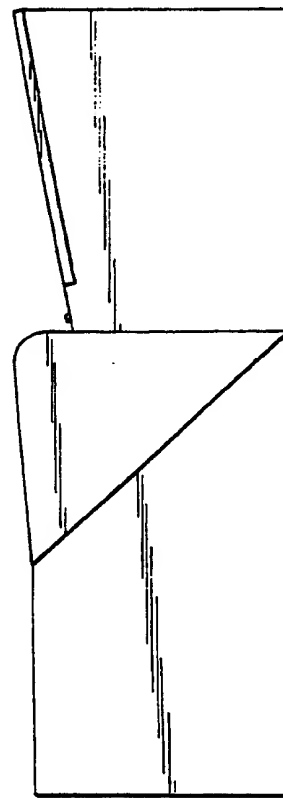


FIG. 11.

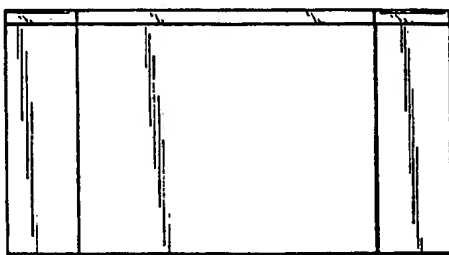


FIG. 13.

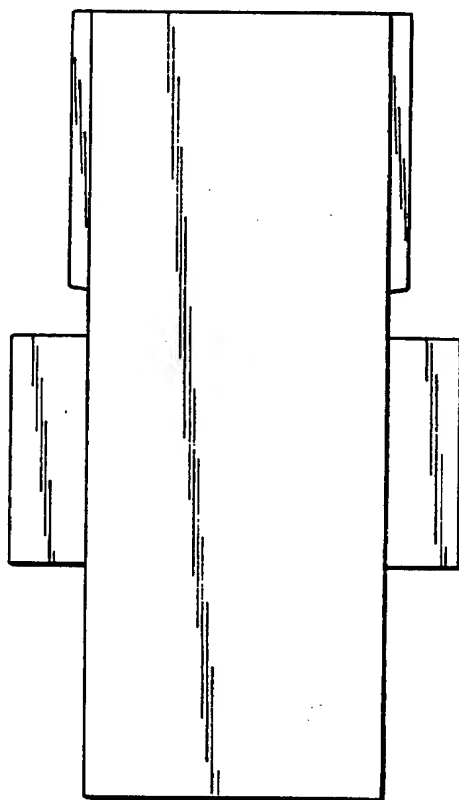


FIG. 14.

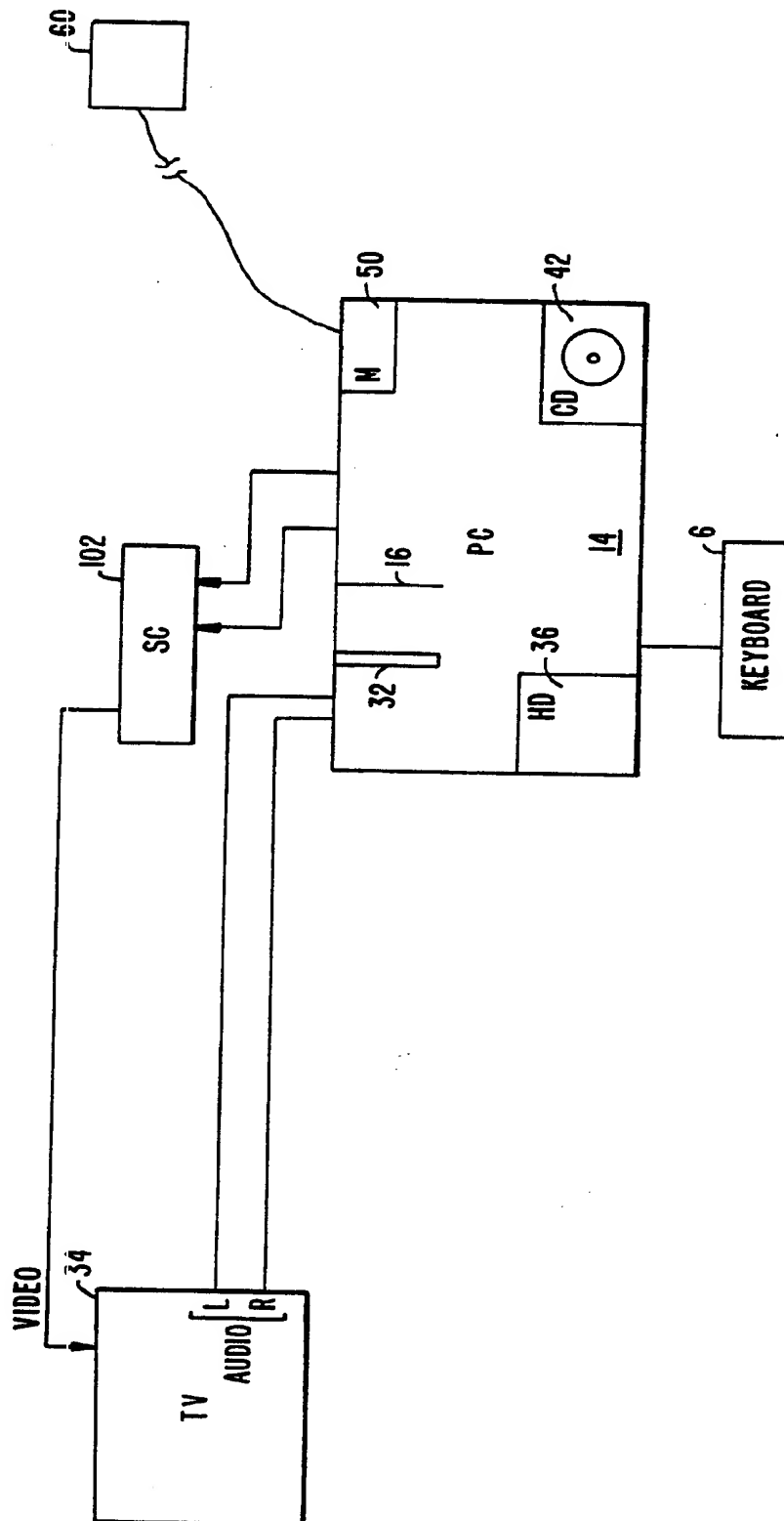


FIG. 15.

SUBSTITUTE SHEET

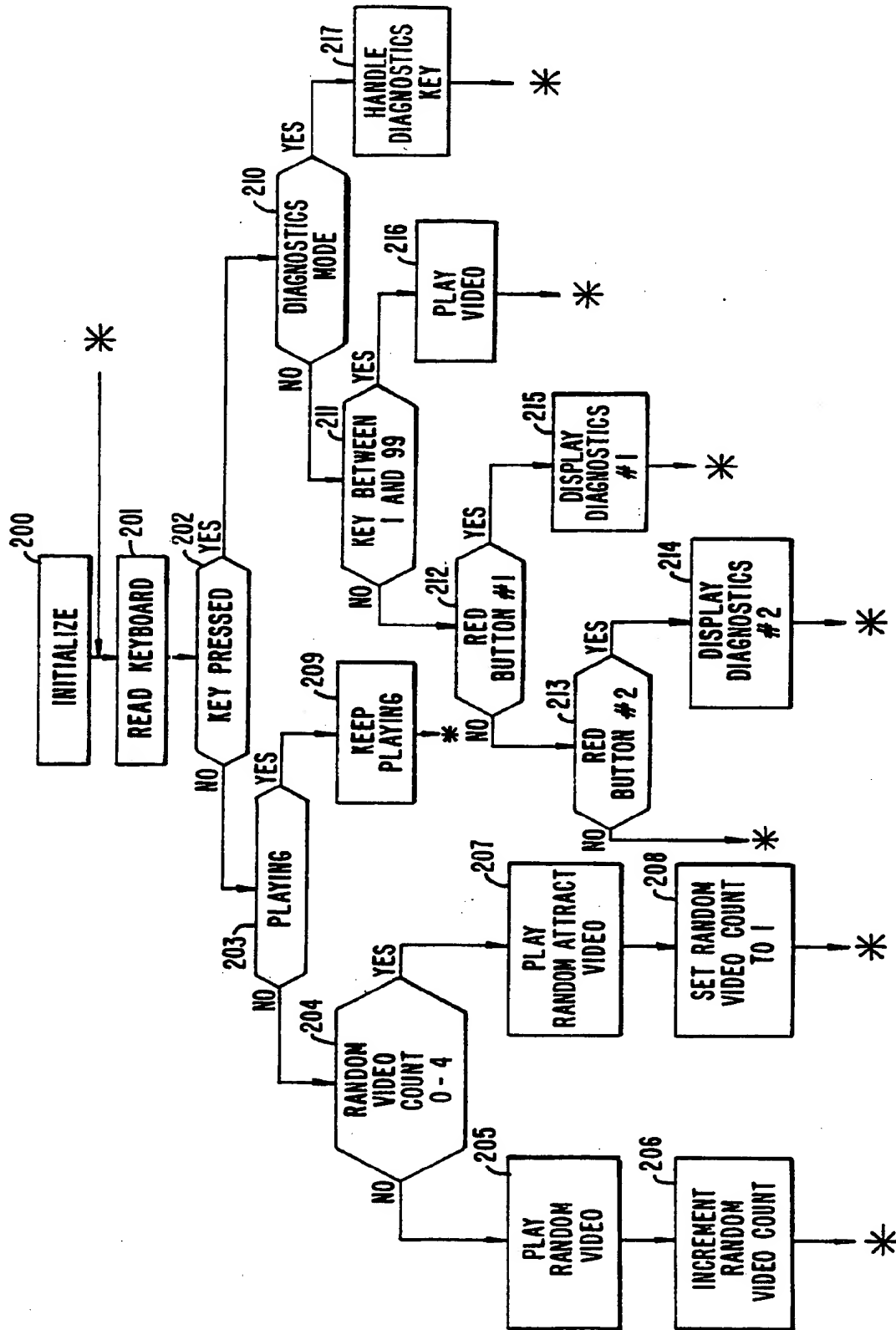


FIG. 16.

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